(No Model.) 2 Sheets—Sheet 1.

J. GREEN.

DIE FOR FORGING CAR COUPLING HOOKS.

No. 456,892. Patented July 28, 1891.

Fig. 1.

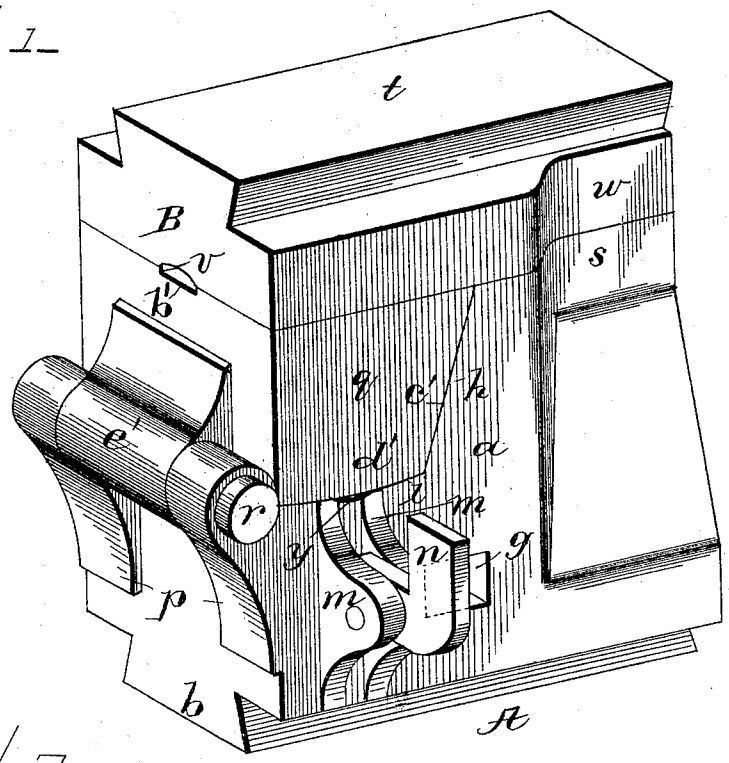


Fig. 2.

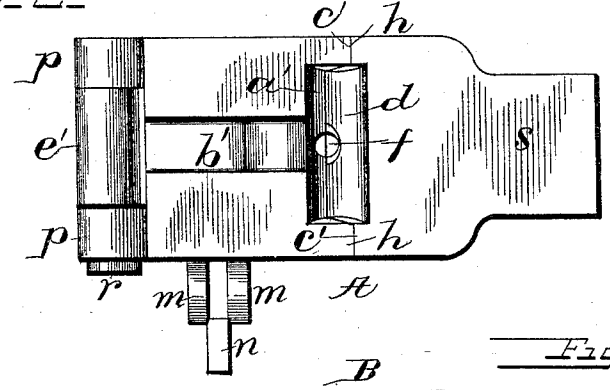
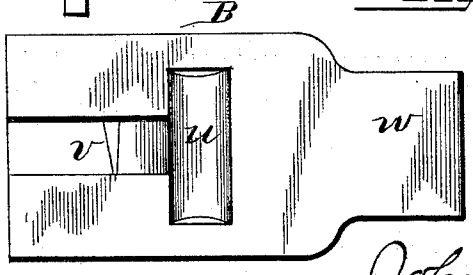


Fig. 3.



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Fig. 4

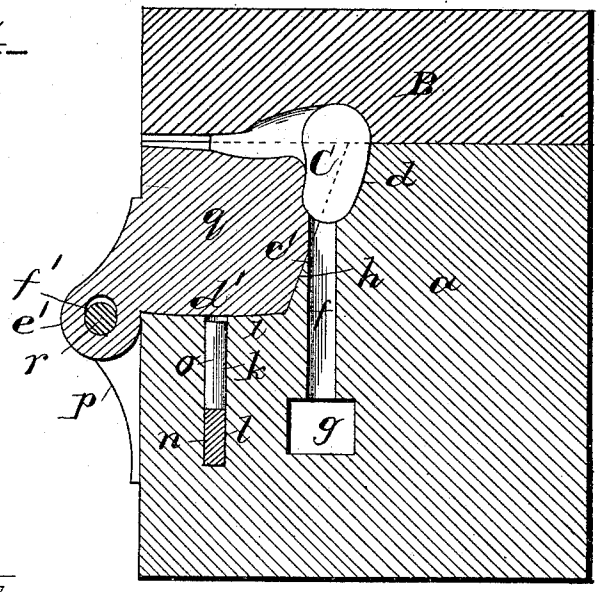


Fig. 5

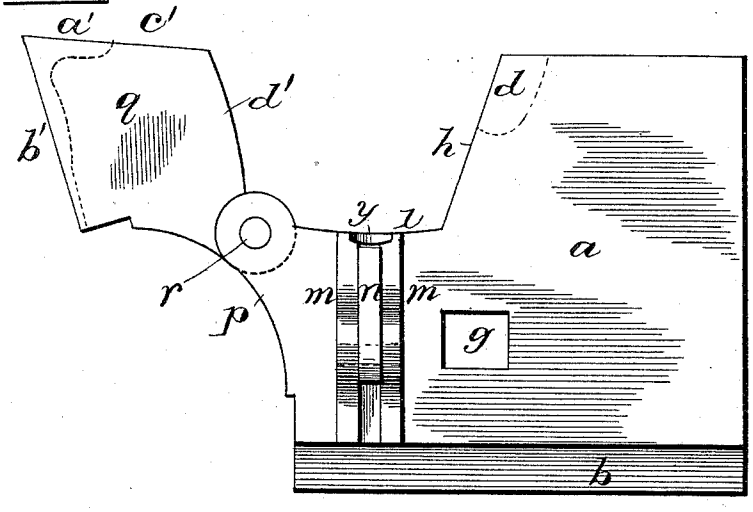
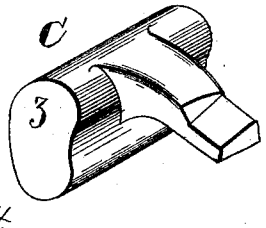


Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN GREEN, OF RENOVO, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM L. HOLMAN AND JOHN McCORD, BOTH OF SAME PLACE.

DIE FOR FORGING CAR-COUPLING HOOKS.

SPECIFICATION forming part of Letters Patent No. 456,892, dated July 28, 1891.

Application filed June 4, 1891. Serial No. 395,102. (No model.)

To all whom it may concern:

Be it known that I, JOHN GREEN, a citizen of the United States, residing at Renovo, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Dies for Forging Car-Coupling Hooks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the manufacture of car-couplers of the master-car-builder type, and has for its object improvements in dies for forging the hook or tongue which swings laterally in the head of this class of couplers. Hooks for this class of couplers have heretofore generally been made of cast metal for the reason that great difficulty and expense have attended their forging, and the cast-metal hooks have been a source of great annoyance, especially in cold weather, by their breaking and causing delay of the car to which attached when broken.

The invention will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form part of this specification, Figure 1 is a perspective of my improved dies; Fig. 2, a top plan view of the lower die; Fig. 3, an inverted plan of the top die; Fig. 4, a vertical longitudinal section of the dies with a coupling-hook in the cavities of the die; Fig. 5, a side elevation of the lower die, showing the cheek-piece of the die removed from the major portion of the die, and Fig. 6 a perspective of a forged coupling-hook.

Reference being had to the drawings and the letters thereon, A indicates the lower die, which is made in two parts, *a* being the major portion, which is secured in the usual manner of securing dies by wedges, (not shown,) which engage with the dovetailed projection *b* on the bottom of the die and with the block upon which the die rests when in use. The part *a* is provided with a transverse cavity *d;* a vertical channel *f*, which communicates with a transverse passage *g* for removing the scale which accumulates in the cavity *d;* an angular wall *h;* a concave seat *i;* a vertical aperture *k;* a transverse slot *l;* lugs *m m*, to which a lever *n* is pivoted; a pin *o*, which rests upon the inner end of the lever *n* in the slot *e;* lugs *p p*, to which the cheek-piece or inner portion *q* of the lower die is pivotally secured. The cheek-piece *q* is provided with a transverse cavity *a'* and a longitudinal cavity *b'*; the former of which conforms to the cavity *d* in the part *a;* an angular wall *c'*, which conforms to the wall *h;* a convex seat *d'*, which conforms to the concave seat *i;* a lug *e'*, which is provided with a transverse aperture *f'*, which is elongated vertically to compensate for wear of the seats *i* and *d'*. The two parts of the lower die are secured together by a pin *r*, which passes through the lugs *p p* and *e'* and admits of the part *q* being removed laterally from the part *a* to release the forging. The lower die A is also provided with an extension or anvil *s* to afford means for forging the blank from which the hook is made or other forgings while the die is in position under a drop-hammer for forging the hook.

B indicates the upper die, which is secured to a drop-hammer or hydraulic press by its dovetailed projection *t* in the usual manner and is provided with a transverse cavity *u* and a longitudinal cavity *v*, which conform to the cavities *d*, *a'*, and *b'* of the lower die and give contour to the coupling-hook. It will be observed that the longitudinal cavities *b'* and *v* extend to the end of the dies and afford means for the escape of air from the cavities in the dies and surplus metal from the blank out of which the hook is forged. The upper die B is also provided with an extension *w*, which corresponds with the anvil *s* on the lower die and constitutes a hammer for forging purposes. The angular walls *h* and *c'* and the concavo-convex seats *i* and *d'* cause the cheek-piece *q* to be pressed toward the piece *a* by the descent of the upper die and resist the tendency of the two parts of the die to be separated by the blank while being forged into a hook. The forged hook C is shown in Figs. 4 and 6.

The operation is as follows: A blank made from properly-piled bars of iron is worked into rough form approximating the hook C, is heated to substantially a welding-heat, and dropped into the cavities in the lower die,

when the upper die is brought down upon the blank forcibly and the forging of the hook effected. When the forging has been completed, which is apparent by the upper die resting upon the face of the lower die, the upper die is raised out of the way and the outer end of the lever n struck by a hammer or otherwise forcibly depressed, which causes the pin o to rise and raise the cheek-piece q with such force as to throw it into the position shown in Fig. 5, which will release the hook C, and it will fall upon the seat i, or when a fin is formed in the cavities b' and v the hook may be carried with the cheek-piece and dropped at one end of the lower die. The scale which falls from the forging upon the seat i will gravitate toward the center of the seat, and is removed therefrom through the groove y, which is inclined outward from the transverse center of the seat toward both sides of the die. The cheek-piece q is then returned to its seat on the part a, when the foregoing forging may be repeated. After the hook has been forged it is drilled through the thickened portion z and seats (not shown) formed for engaging with a draw-head.

Having thus fully described my invention, what I claim is—

1. In dies, substantially as described, for forging car-coupling hooks, a lower die in two parts, each having suitable cavities therein, and one of said parts movable from the other, in combination with an upper die.

2. In dies, substantially as described, for forging car-coupling hooks, a lower die in two parts having suitable cavities therein, separated at an angle to the horizontal plane of the die, and one of said parts movable from the other, in combination with an upper die.

3. In dies, substantially as described, for forging car-coupling hooks, a lower die in two separable parts, each having suitable cavities therein, and means for separating said parts, in combination with an upper die.

4. In dies, substantially as described, for forging car-coupling hooks, a lower die in two parts having suitable cavities, and one of said parts hinged to the other, in combination with an upper die.

5. In dies, substantially as described, for forging car-coupling hooks, a lower die in two parts having suitable cavities, and one of said parts hinged to the other, in combination with suitable means for raising one of said parts to release the forging, and an upper die.

6. In dies, substantially as described, for forging car-coupling hooks, a lower die in two parts having suitable cavities, and one of said parts hinged to the other, in combination with a tripping mechanism for raising one of said parts to release the forging, and an upper die.

7. In dies, substantially as described, for forging car-coupling hooks, a lower die in two parts having suitable cavities and an angular line of separation between said parts, a hinged joint, a lever, and a pin for raising one of said parts of the die, and an upper die.

8. A lower die, substantially as described, having suitable cavities therein, and an anvil on one end of the die, in combination with an upper die having suitable cavities, and a hammer-surface at one end corresponding with the anvil on the lower die.

9. A two-part lower die, substantially as described, having an angular wall and a concave seat on one part, an angular wall and a convex surface on the other part, and said parts movably connected, and a transverse and a longitudinal cavity in the die, in combination with an upper die having a transverse and a longitudinal cavity.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN GREEN.

Witnesses:
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H. B. REINOHL.